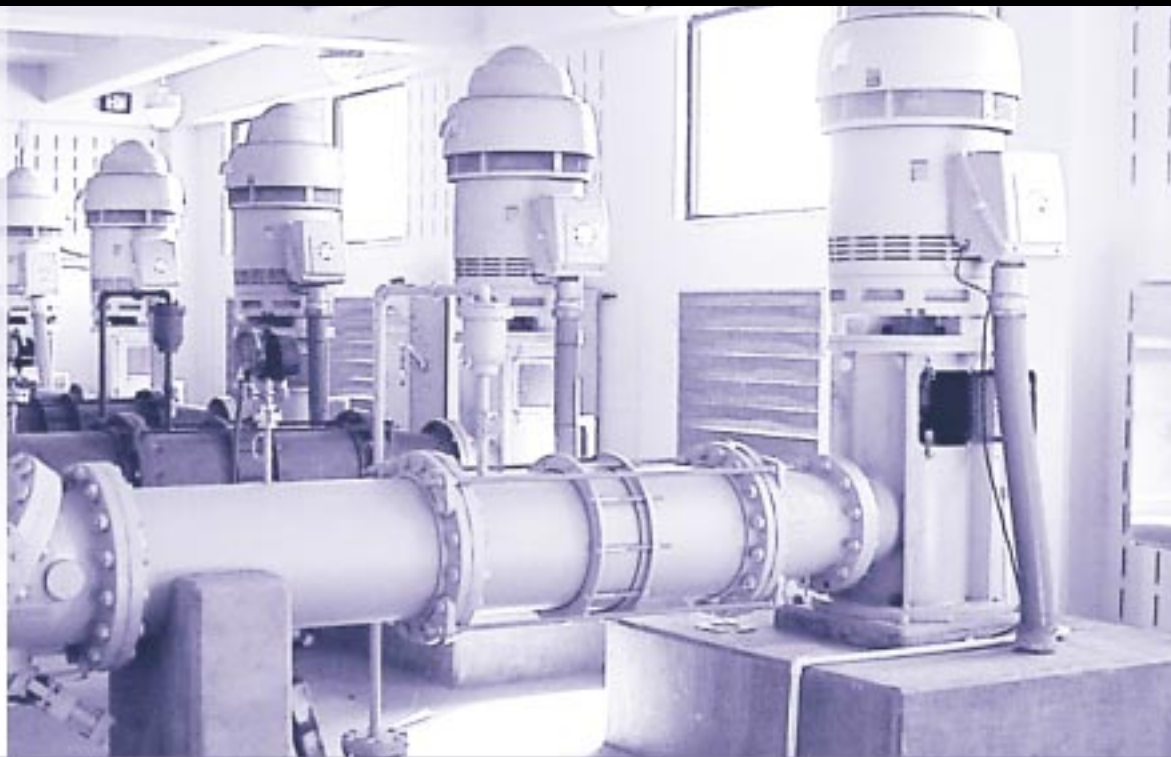


below
the
surface
an in-depth
look at...



Water Reuse:

A safe and effective way to save water

ON THE INSIDE

- Reclaimed water and reuse explained
- Reuse success stories
- Reuse on a regional level
- How water is reclaimed

The demand for water by growing urban populations and agricultural operations is predicted to increase significantly in the coming years. Ground water and surface water, which have historically provided these needs, will not be sufficient to satisfy all future demands. Meeting this growing thirst hinges on our efforts to develop alternative water sources. This brochure looks at one of the ways to conserve our water resources — reclaiming water for reuse.

Consider what happens to the water we use inside the home. Once down the drain, this water is piped to the local wastewater treatment plant where it undergoes treatment to meet state standards for disposal. Historically, most of the water was disposed by injecting the water deep underground or by discharging to surrounding waters or to the ocean. This is a wasteful way to treat such a valuable resource.

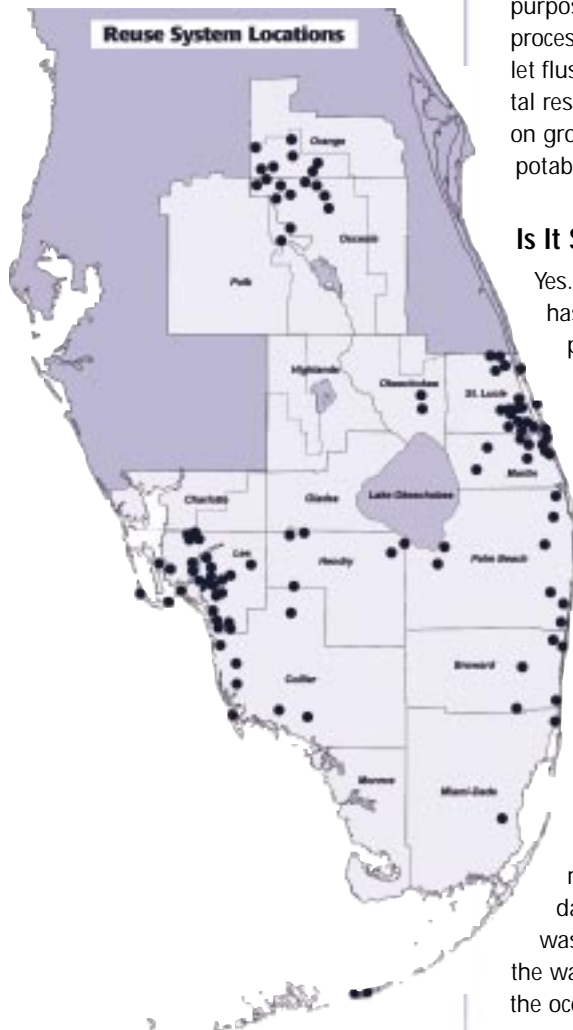
More and more communities are finding that wastewater need not be wasted at all. They're reclaiming this water for irrigation of residential lots, golf courses, sports fields and orange groves, industrial



Reclaimed water sign in Collier County.



The color purple is used to identify pumps, tanks and pipes carrying reclaimed water for reuse. The photo above and on the cover shows a reuse pump station in Collier County.



cooling, car washing, fire protection and ground water recharge.

Reuse is also beneficial to the environment. During times of drought, reclaimed water is an excellent source of water because its availability is not dependent on rainfall. The use of reclaimed water is currently exempt from water shortage restrictions.

What Is Reclaimed Water and Water Reuse?

Water use with reclaimed water is the use of highly treated domestic wastewater for beneficial purposes, such as: irrigation of yards, agriculture, golf courses, play grounds, and other green space; industrial purposes such as cooling water and process water; ground water recharge; toilet flushing; dust control and environmental restoration. Reuse reduces the reliance on ground water, surface water and potable water for these uses.

Is It Safe to Use Reclaimed Water?

Yes. The Florida Department of Health has found that reuse poses no threat to public health. Continuous monitoring of reclaimed water, required by the Florida Department of Environmental Protection, ensures excellent water quality for protection of the public and the environment.

Success Stories

The map to the left shows locations where reclaimed water is being utilized within the 16-county boundary of the South Florida Water Management District. The dots represent over 100 wastewater facilities that are reusing over 190 million gallons per day (mgd) or 25 percent of the total wastewater treated. For now, the rest of the wastewater (510 mgd) is being sent to the ocean or injected 3,000 feet underground, primarily in Palm Beach, Broward and Miami-Dade counties. This is water

that could be reclaimed for reuse.

• **Broward County Waste-to-Energy Facility** – This north Broward solid waste facility uses over 1 mgd of reclaimed water for boiler cooling. The reclaimed water comes from the Broward County North District Wastewater Treatment Plant.

• **Cape Coral** – Reclaimed water is irrigating over 27,000 residences as part of the city's Water Independence for Cape Coral (WICC) campaign. Canal water is used to supplement reclaimed water to meet the 22 mgd system demand.

• **City of West Palm Beach** – Almost 10 mgd of reclaimed water will be flowing from the East Central Regional Wastewater Treatment Facility to restore approximately 1,400 acres of wetlands and recharge the city's adjacent wellfield. The system will be operational in 2003.

• **Collier County** – About 15 mgd of reclaimed water is used for irrigation of 3,500 residences, 21 golf courses, and 10 parks.

• **Conserv II** – This award-winning project serves portions of both Orange County and the City of Orlando. Highly treated reclaimed water is piped about 20 miles west of Orlando and is used to irrigate about 8,000 acres of citrus crops and to recharge ground water via 1,600 acres of rapid infiltration basins. The system is reusing almost 26 mgd.

• **Loxahatchee River Environmental Control District** – Located in Jupiter, this facility is reusing over 5 mgd of reclaimed water for irrigation of 11 golf courses and the Abacoa Development green space and residential lots.

• **Palm Beach County** – The Southern Region Water Reclamation facility is reusing over 5 mgd of reclaimed water for irrigation of 3,300 residences, four golf courses and one park, and for environmental enhancement at the Wakodahatchee wetlands.

• **Reedy Creek Improvement District** This utility provides reclaimed water for

OTHER SUCCESSFUL REUSE UTILITIES IN OUR DISTRICT

Boca Raton	Naples
Bonita Springs	North Fort Myers
Clewiston	Okeechobee
Fort Myers	Orange County
Gulf Utilities	Poinciana
Hollywood	Pompano Beach
Homestead	Port St. Lucie
Immokalee	Royal Palm Beach
Indiantown	St. Cloud
Kissimmee	Sanibel
Lee County	Seacoast
Lehigh Acres	South Central Regional (Boynton Beach/Delray Beach)
Marco Island	South Martin Regional (Hobe Sound/Jupiter Island)
Martin County	
Miami-Dade North District	
Miramar	

irrigation of the landscaped areas in the Walt Disney World Resort Complex. Five golf courses, landscaped areas at five hotels, highway medians, a 110-acre tree farm, and a water park are irrigated with reclaimed water. A network of 85 rapid-infiltration basins is used for ground water recharge. Almost 5 mgd of reclaimed water is used for irrigation while 6 mgd is used for ground water recharge.

Does the SFWMD Help Fund Reuse Projects?

The District provides financial assistance through the Alternative Water Supply Funding (AWS) program to local entities in developing local reuse initiatives. The District has contributed over \$30 million in the past six years to 100 AWS projects through its annual grants program. (See back page for contact information on grant application.)

Reuse on a Regional Level

The District has embarked on several regional applications of reclaimed water pursuant to its regional water supply

plans to meet the regions future water needs:

Kissimmee/Orlando Area - The District is working with utilities in Orange and Osceola Counties to optimize the use of reclaimed water to offset withdrawals from the Floridan aquifer and avoid potential harm to the ground water resources. The District is also investigating the feasibility of storing reclaimed water in the Floridan aquifer as a form of aquifer recharge.

Collier, Lee, Martin Counties/ Northern Palm Beach County -

These areas have a very high percentage of reuse. The demand, especially for irrigation, has grown beyond what can reasonably be supplied by traditional ground water sources and reclaimed water sources. There is a waiting list of users for reclaimed water. Utilities and the District are working together to maximize the use of reclaimed water. This includes interconnecting reclaimed water systems, developing supplemental sources of water and storage, and construction of regional irrigation distribution systems.



Groundwater recharge basins in Orlando.



Ft. Myers city nursery using reclaimed water.



Wetland created with reclaimed water in south Palm Beach County.



Freeze-proofing plants with reclaimed water in Orlando.



Reclaimed water for golf course irrigation in Palm Beach Gardens.

Miami-Dade, Broward, Palm Beach Counties - Miami-Dade, Broward and Palm Beach counties make up the Lower East Coast urban corridor. During the dry season, these counties depend on water from the Everglades and Lake Okeechobee system to maintain urban drainage canal levels to recharge the Biscayne aquifer (the source of their drinking water) and to protect against saltwater intrusion into the aquifer. The District is investigating the feasibility of using reclaimed water to do the same job – called indirect aquifer

recharge. This would reduce the demand on the regional system and improve Everglades/Lake Okeechobee restoration efforts.

Everglades Restoration - The use of reclaimed water is being evaluated as part of the Comprehensive Everglades Restoration Plan (CERP). As much as 200 mgd of reclaimed water could be used to reduce seepage from Everglades National Park and increase freshwater flows to Biscayne Bay and coastal wetlands.

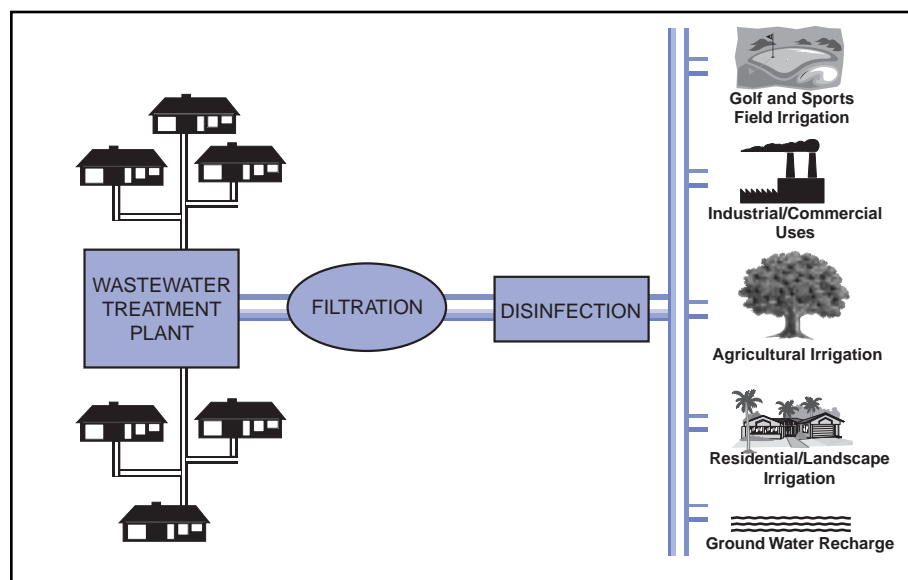
DID YOU KNOW?

- Almost 42,000 residences, 141 golf courses, 67 parks, and 13 schools are using reclaimed water for irrigation within the boundaries of the South Florida Water Management District.
- Reclaimed water doesn't smell or stain sidewalks and driveways like well water or canal water.
- Nature is the ultimate reuser of water. Through what is called the "hydrologic cycle," today's rainfall is the same water recycled over millions and millions of years.
- An average of 575 million gallons a day of reclaimed water is reused every day in Florida. Most of this reuse occurs within the 16-county area of the South Florida Water Management District.
- Collier County reuses over 125 gallons per day per person of reclaimed water — the most in the state.
- Users of reclaimed water are currently exempt from restrictions imposed during water shortages.
- Wastewater flows within the District's boundaries are projected to increase to over 1.3 billion gallons a day by 2020.
- Eighty percent of wastewater treated in the District is in Palm Beach, Broward, and Miami-Dade counties. Of that, only 9 percent is reused.

■ Putting reclaimed water to beneficial use is "Recycling at its Best."

■ mgd = million gallons per day

Florida's Water
It's Worth Saving



This diagram follows the process of turning residential wastewater into reclaimed water for reuse. Separate pipes carry wastewater to the treatment plant where it undergoes treatment, including filtration and disinfection before it can be distributed. Reuse eliminates the dependence on potable water, surface water or ground water for these uses.

– FOR WATER REUSE INFORMATION –

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– INFORMATION ON ALTERNATIVE WATER SUPPLY GRANTS –

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The South Florida Water Management District is a regional, governmental agency that oversees the water resources in the southern half of the state. It is the oldest and largest of the state's five water management districts.

Our Mission is to manage and protect water resources of the region by balancing and improving water quality, flood control, natural systems, and water supply.

This "Below the Surface" publication on Water Reuse directly supports our mission of water supply.



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